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CLAIMS

[Claim(s)]

[Claim 1] The parabola reflecting mirror on which it reflects in and the electric wave from a broadcasting satellite is converged, and the low noise block down converter which carries out reception magnification of the signal of the satellite which converged, and is changed into the frequency of a 1GHz band, While clinging to the arm which supports this low noise block down converter, and the rear face of said parabola reflecting mirror through the supporting point and enabling adjustment of an elevation angle In BS antenna equipped with the elevation angle adjustment metallic ornaments which pinch the pole, while said elevation angle adjustment metallic ornaments prepare the slot of the shape of radii which is made to rotate said parabola reflecting mirror near said supporting point, and enables adjustment of an elevation angle BS antenna characterized by constituting possible [folding] to said parabola reflecting mirror side by making the end side of this slot into the shape of open type.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to BS antenna in the device for satellite broadcasting service reception.

[0002]

[Description of the Prior Art] JP,60-74316,U etc. is proposed as a conventional BS antenna. The conventional offset parabolic antenna indicated by JP,60-74316,U is explained using drawing 5 .

[0003] In drawing 5 , a sign 1 reflects the electric wave from a broadcasting satellite (Following BS is called). The low noise block down converter which carries out frequency conversion of the electric wave of the 12GHz band which 2 received [the parabola reflecting mirror to converge and] and was amplified to a 1GHz band (Following LNB is called), The arm with which 3 fixes LNB2 to a position, the elevation angle adjustment metallic ornaments by which 4 performs adjustment of an elevation angle, and immobilization on the pole, the immobilization which the pole and 6 put a pole set screw with the elevation angle adjustment metallic ornaments 4 and the pole set screw 6, and, as for 5, 7 puts the pole 5, and fixes an antenna to the pole 5 -- public funds -- an implement and the dummy support with which 8 connects the elevation angle adjustment metallic ornaments 4 with the parabola reflecting mirror 1. In order to adjust an elevation angle, it adjusts using the elevation angle adjustment metallic ornaments 4 and dummy support 8.

[0004]

[Problem(s) to be Solved by the Invention] In the above conventional examples, metallic ornaments, such as elevation angle adjustment metallic ornaments and fixed metallic ornaments, are attached in the tooth back of a reflector at the single tier. Since it packed up while for the reason the antenna overall length became long and packing had attached metallic ornaments, it had the problem that the depth dimension of a packing case became large.

[0005] This invention offers BS antenna which can carry out cost reduction by making the depth dimension of a packing case small by shortening the overall length of an antenna in view of the above-mentioned trouble, and making a packing case small.

[0006]

[Means for Solving the Problem] By making into the shape of open type the end side of the slot of the shape of radii prepared in elevation angle adjustment metallic ornaments, BS antenna of this invention rotates 90 degrees, and makes possible folding of elevation angle adjustment metallic ornaments to the foldable configuration at the reflector side.

[0007]

[Function] According to the BS antenna of this invention, elevation angle adjustment metallic ornaments can be rotated 90 degrees to a reflector side using slitting of elevation angle adjustment metallic ornaments, and the overall length of an antenna can be made small.

[0008]

[Example] Below, it explains, referring to drawing 1 , and 2, 3 and 4 about BS antenna of one example of this invention.

[0009] Drawing 1 is the block diagram of BS antenna in one example of this invention which can be folded.

[0010] In drawing 1 , reflect a sign 1 with a parabola reflecting mirror, and 2 is reflected with the parabola reflecting mirror 1. The low noise block down converter which performs frequency conversion on the 1GHz

band which is easy to treat the electric wave of the 12GHz band which converged (Following LNB is called), The arm with which 3 fixes LNB to a position, the elevation angle adjustment metallic ornaments by which 4 performs adjustment of an elevation angle, and immobilization on the pole, The fixed metallic ornaments which the pole and 6 put a pole set screw with the elevation angle adjustment metallic ornaments 4 and the pole set screw 6, and, as for 5, 7 puts the pole 5, and fix an antenna to the pole 5, and 8 are dummy support which connects the elevation angle adjustment metallic ornaments 4 with the parabola reflecting mirror 1. Drawing 2 is the top view of BS antenna in one example of this invention which can be folded. Drawing 3 is the elements on larger scale of the side elevation of the elevation angle adjustment metallic ornaments 4.

[0011] In order to adjust an elevation angle to the elevation angle adjustment metallic ornaments 4, the radii-like slot 9 is formed in them, and one end of this slot is made into the shape of open type. By making the end side of a slot 9 into the shape of open type, the elevation angle adjustment metallic ornaments 4 can be rotated to a reflector side by using the elevation angle supporting-point screw thread 11 as the supporting point, without only loosening the elevation angle lockscrew 12 and removing the elevation angle lockscrew 12. Drawing 4 is the side elevation of the offset parabolic antenna in the condition of having equipped with and folded up the elevation angle adjustment metallic ornaments 4 of this invention.

[0012] By constituting BS antenna like the above-mentioned example, elevation angle adjustment metallic ornaments can be rotated 90 degrees possible [folding] to a reflector side.

[0013]

[Effect of the Invention] As mentioned above, according to this invention, one end of the slot part of elevation angle adjustment metallic ornaments is released, and the overall length of an antenna becomes short by rotating elevation angle adjustment metallic ornaments 90 degrees. The depth dimension of a packing case can be made small because the overall length of an antenna becomes short, and cost can also be reduced.

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TECHNICAL FIELD

[Industrial Application] This invention relates to BS antenna in the device for satellite broadcasting service reception.

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PRIOR ART

[Description of the Prior Art] JP,60-74316,U etc. is proposed as a conventional BS antenna. The conventional offset parabolic antenna indicated by JP,60-74316,U is explained using drawing 5 .

[0003] In drawing 5 , a sign 1 reflects the electric wave from a broadcasting satellite (Following BS is called). The low noise block down converter which carries out frequency conversion of the electric wave of the 12GHz band which 2 received [the parabola reflecting mirror to converge and] and was amplified to a 1GHz band (Following LNB is called), The arm with which 3 fixes LNB2 to a position, the elevation angle adjustment metallic ornaments by which 4 performs adjustment of an elevation angle, and immobilization on the pole, the immobilization which the pole and 6 put a pole set screw with the elevation angle adjustment metallic ornaments 4 and the pole set screw 6, and, as for 5, 7 puts the pole 5, and fixes an antenna to the pole 5 -- public funds -- an implement and the dummy support with which 8 connects the elevation angle adjustment metallic ornaments 4 with the parabola reflecting mirror 1. In order to adjust an elevation angle, it adjusts using the elevation angle adjustment metallic ornaments 4 and dummy support 8.

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EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, according to this invention, one end of the slot part of elevation angle adjustment metallic ornaments is released, and the overall length of an antenna becomes short by rotating elevation angle adjustment metallic ornaments 90 degrees. The depth dimension of a packing case can be made small because the overall length of an antenna becomes short, and cost can also be reduced.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In the above conventional examples, metallic ornaments, such as elevation angle adjustment metallic ornaments and fixed metallic ornaments, are attached in the tooth back of a reflector at the single tier. Since it packed up while for the reason the antenna overall length became long and packing had attached metallic ornaments, it had the problem that the depth dimension of a packing case became large.

[0005] This invention offers BS antenna which can carry out cost reduction by making the depth dimension of a packing case small by shortening the overall length of an antenna in view of the above-mentioned trouble, and making a packing case small.

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MEANS

[Means for Solving the Problem] By making into the shape of open type the end side of the slot of the shape of radii prepared in elevation angle adjustment metallic ornaments, BS antenna of this invention rotates 90 degrees, and makes possible folding of elevation angle adjustment metallic ornaments to the foldable configuration at the reflector side.

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OPERATION

[Function] According to the BS antenna of this invention, elevation angle adjustment metallic ornaments can be rotated 90 degrees to a reflector side using slitting of elevation angle adjustment metallic ornaments, and the overall length of an antenna can be made small.

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EXAMPLE

[Example] Below, it explains, referring to drawing 1 , and 2, 3 and 4 about BS antenna of one example of this invention.

[0009] Drawing 1 is the block diagram of BS antenna in one example of this invention which can be folded.

[0010] In drawing 1 , reflect a sign 1 with a parabola reflecting mirror, and 2 is reflected with the parabola reflecting mirror 1. The low noise block down converter which performs frequency conversion on the 1GHz band which is easy to treat the electric wave of the 12GHz band which converged (Following LNB is called), The arm with which 3 fixes LNB to a position, the elevation angle adjustment metallic ornaments by which 4 performs adjustment of an elevation angle, and immobilization on the pole, The fixed metallic ornaments which the pole and 6 put a pole set screw with the elevation angle adjustment metallic ornaments 4 and the pole set screw 6, and, as for 5, 7 puts the pole 5, and fix an antenna to the pole 5, and 8 are dummy support which connects the elevation angle adjustment metallic ornaments 4 with the parabola reflecting mirror 1. Drawing 2 is the top view of BS antenna in one example of this invention which can be folded. Drawing 3 is the elements on larger scale of the side elevation of the elevation angle adjustment metallic ornaments 4.

[0011] In order to adjust an elevation angle to the elevation angle adjustment metallic ornaments 4, the radii-like slot 9 is formed in them, and one end of this slot is made into the shape of open type. By making the end side of a slot 9 into the shape of open type, the elevation angle adjustment metallic ornaments 4 can be rotated to a reflector side by using the elevation angle supporting-point screw thread 11 as the supporting point, without only loosening the elevation angle lock screw 12 and removing the elevation angle lock screw 12. Drawing 4 is the side elevation of the offset parabolic antenna in the condition of having equipped with and folded up the elevation angle adjustment metallic ornaments 4 of this invention.

[0012] By constituting BS antenna like the above-mentioned example, elevation angle adjustment metallic ornaments can be rotated 90 degrees possible [folding] to a reflector side.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The side elevation of BS antenna in one example of this invention

[Drawing 2] The top view of drawing 1

[Drawing 3] The partial amplification side elevation of the elevation angle adjustment metallic ornaments in drawing 1

[Drawing 4] The side elevation in the condition of having folded up the elevation angle adjustment metallic ornaments of drawing 1

[Drawing 5] The side elevation of the conventional BS antenna

[Description of Notations]

1 Parabola Reflecting Mirror

2 LNB

3 Arm

4 Elevation Angle Adjustment Metallic Ornaments

5 Pole

6 Pole Set Screw

7 Fixed Metallic Ornaments

8 Dummy Support

9 Slot

11 Elevation Angle Supporting-Point Screw Thread

12 Elevation Angle Lockscrew

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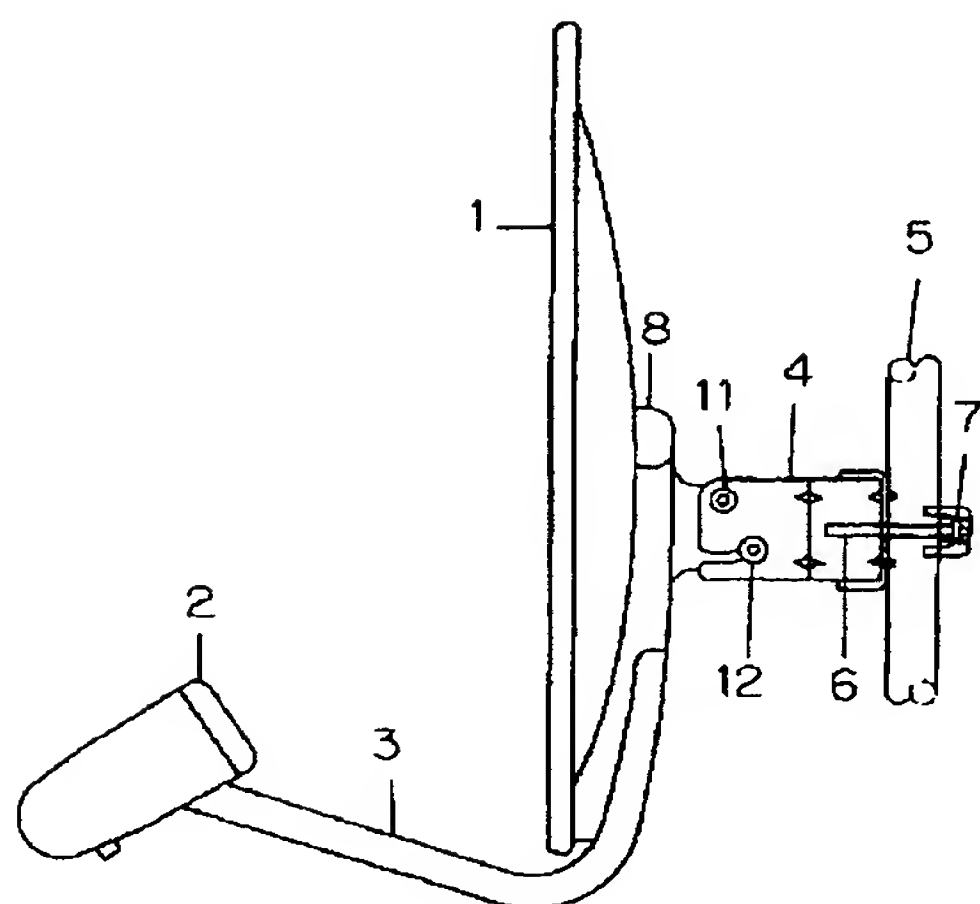
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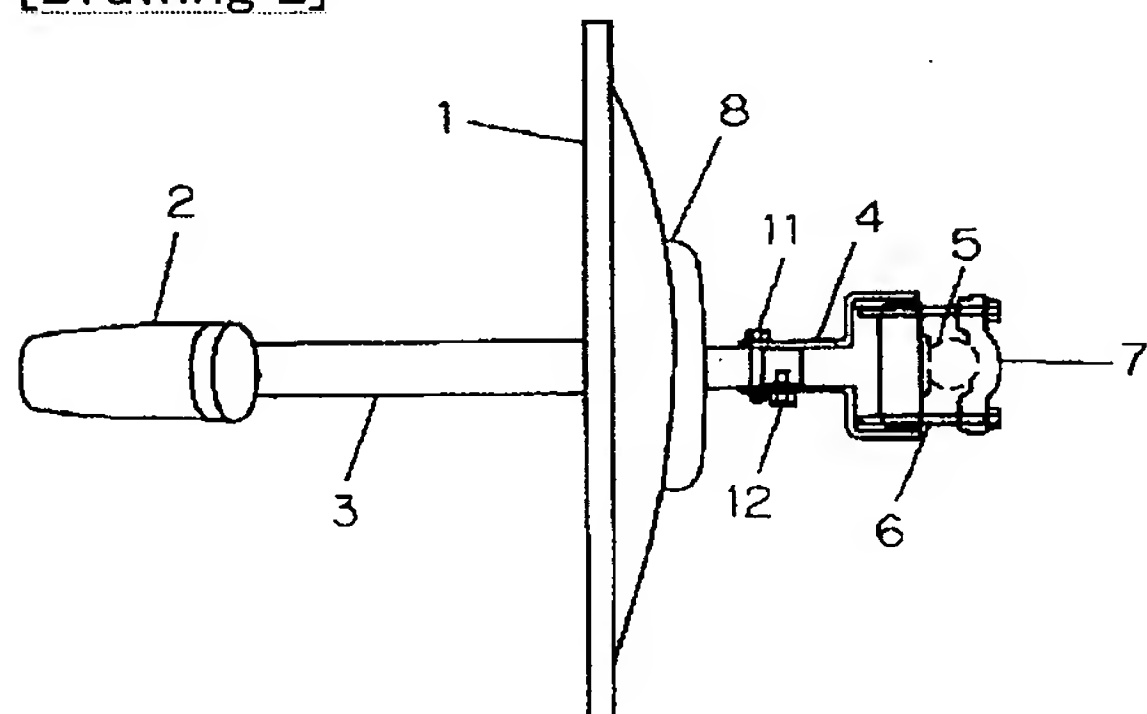
DRAWINGS

[Drawing 1]

- 1 パラボラ反射鏡
- 2 LNB
- 3 アーム
- 4 仰角調整金具
- 5 ボール
- 6 ボール締め付けねじ
- 7 固定金具
- 8 支持金具
- 11 仰角支点ボルト
- 12 仰角固定ボルト

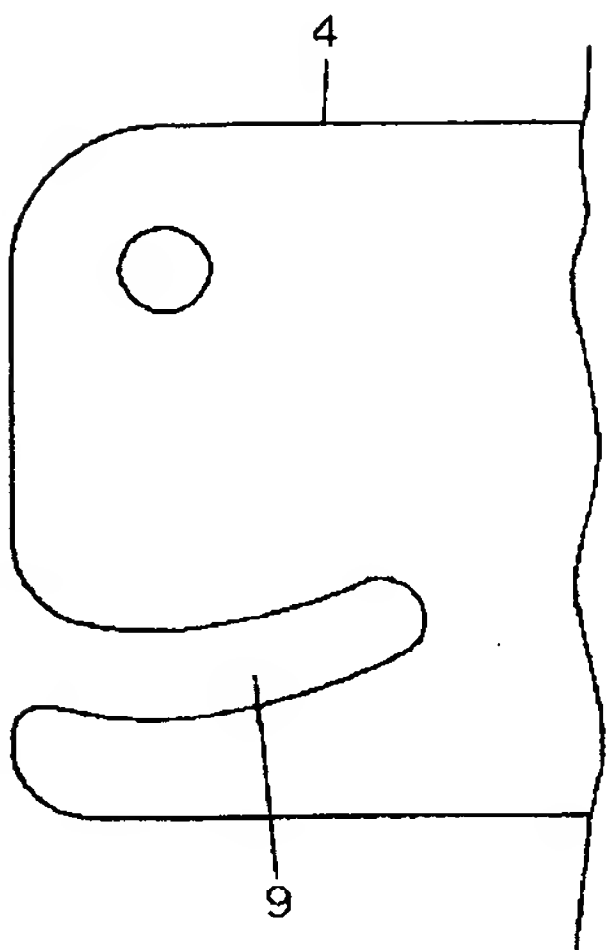


[Drawing 2]

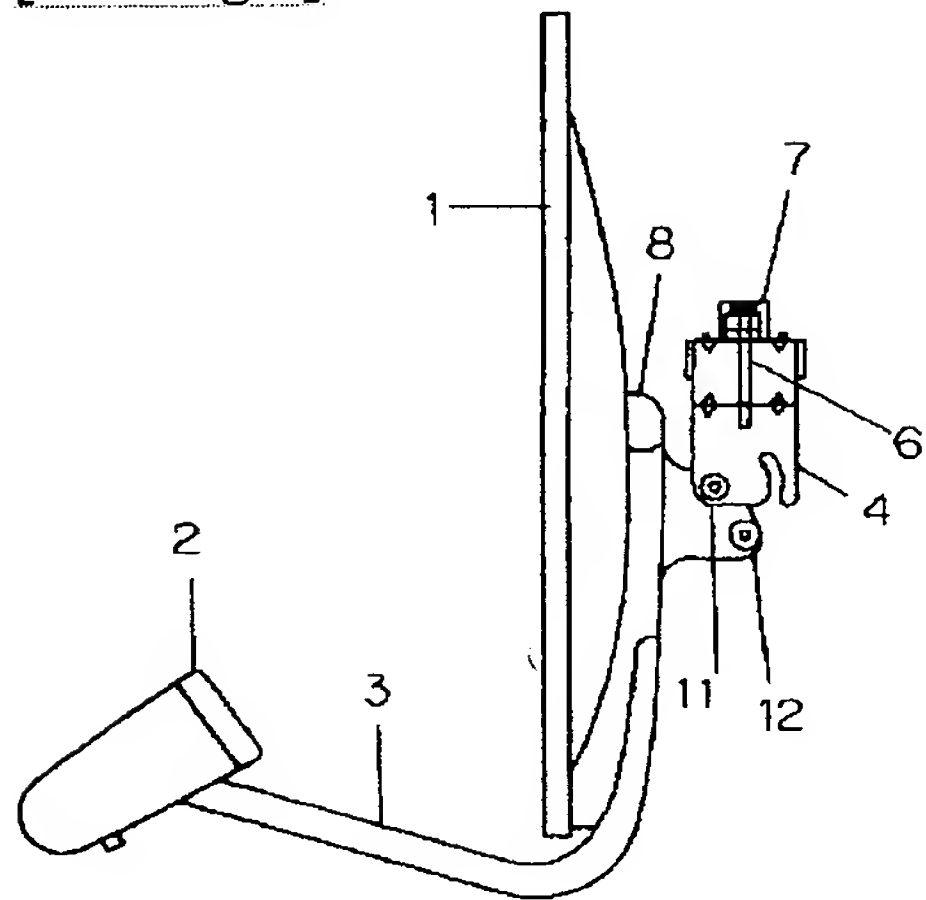


[Drawing 3]

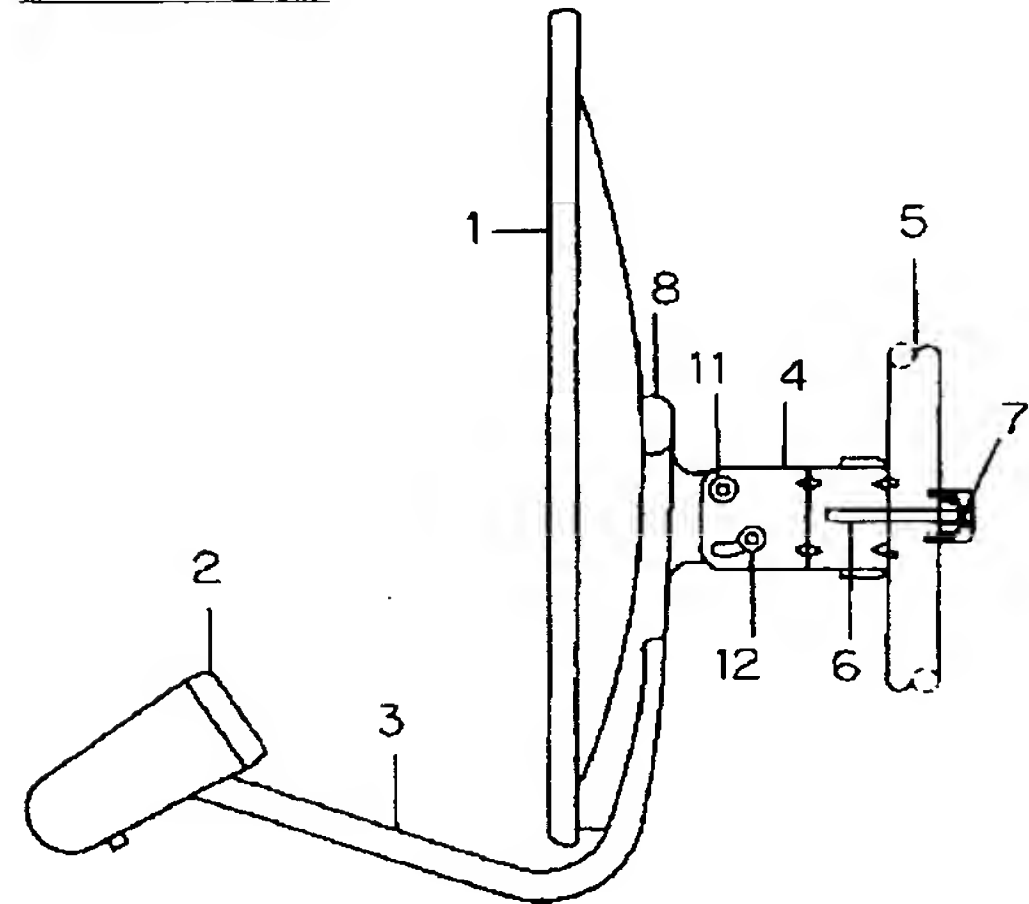
9 長穴



[Drawing 4]



[Drawing 5]



[Translation done.]

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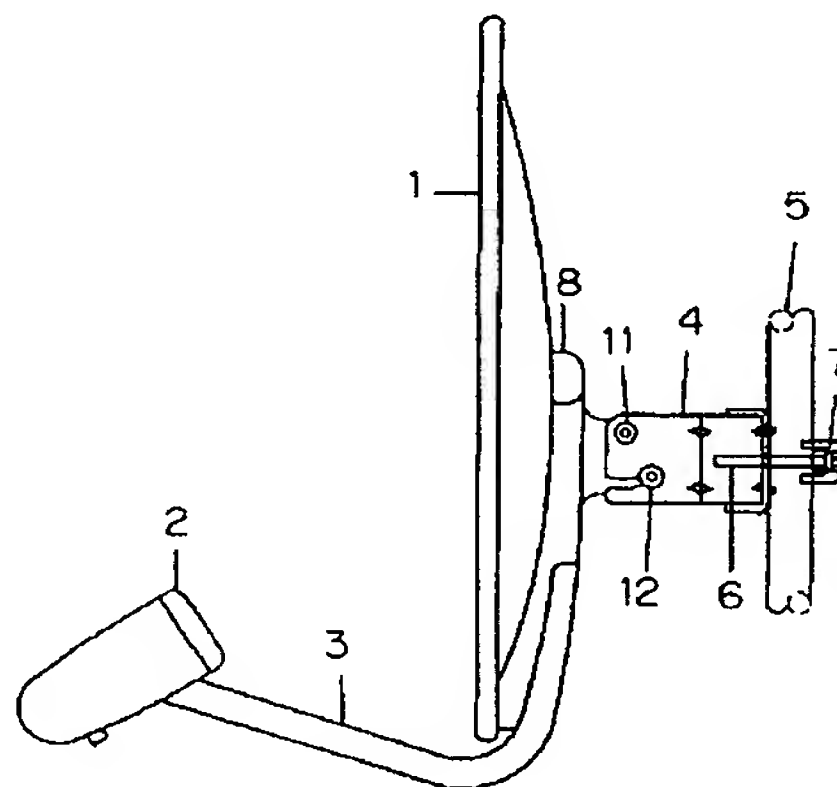
(54)【発明の名称】 B S アンテナ

(57)【要約】

【目的】 アンテナ取り付け金具を折り畳み可能にし、
バックケースへ収納する際の奥行き寸法を小さくす
る。

【構成】 仰角調整金具4は仰角を調整する為の円弧状
の長穴9を設けており、この長穴9の一端側を開放形状
とした構成。

- 1 パラボラ反射鏡
- 2 LNB
- 3 アーム
- 4 仰角調整金具
- 5 ボール
- 6 ボール締め付けねじ
- 7 固定金具
- 8 支持金具
- 11 仰角支点ボルト
- 12 仰角固定ボルト



【特許請求の範囲】

【請求項 1】 放送衛星からの電波を反射し集束させるパラボラ反射鏡と、集束した衛星の信号を受信増幅し 1 GHz 帯の周波数へ変換するローノイズブロックダウンコンバーターと、このローノイズブロックダウンコンバーターを支持するアームと、前記パラボラ反射鏡の裏面に支点を介して取り付け仰角の調整を可能にするとともに、ボールを挟持する仰角調整金具とを備えた BS アンテナにおいて、前記仰角調整金具は前記支点の近傍に前記パラボラ反射鏡を回動させ仰角を調整可能にする円弧状の長穴を設けるとともに、該長穴の一端側を開放形状とすることにより前記パラボラ反射鏡側へ折り畳み可能に構成したことを特徴とする BS アンテナ。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、衛星放送受信機器に於ける BS アンテナに関するものである。

【0002】

【従来の技術】従来の BS アンテナとしては例えば、実開昭 60-74316 号公報などが提案されている。実開昭 60-74316 号公報に記載された従来のオフセットパラボラアンテナを図 5 を用いて説明する。

【0003】図 5 において、符号 1 は放送衛星（以下 BS と称す）からの電波を反射、集束させるパラボラ反射鏡、2 は受信、増幅した 12 GHz 帯の電波を 1 GHz 帯に周波数変換するローノイズブロックダウンコンバーター（以下 LNB と称す）、3 は LNB を所定の位置に固定するアーム、4 は仰角の調整とボールへの固定を行なう仰角調整金具、5 はボール、6 はボール締め付けねじ、7 は仰角調整金具 4 とボール締め付けねじ 6 でボール 5 を挟み込みアンテナをボール 5 に固定する固定用金具、8 はパラボラ反射鏡 1 と仰角調整金具 4 を接続する支持金具。仰角の調整を行うには、仰角調整金具 4 と支持金具 8 を使用して調整を行なう。

【0004】

【発明が解決しようとする課題】上記のような従来例では、仰角調整金具や固定金具といった金具は、リフレクターの背面に一枚に取付けられている。その為、アンテナ全長が長くなり、梱包は金具を取り付けたまま梱包するので、バックアップケースの深さ寸法が大きくなるという問題を有していた。

【0005】本発明は上記問題点に鑑み、アンテナの全長を短くする事でバックアップケースの深さ寸法を小さくし、バックアップケースを小さくする事により、コスト低減出来る BS アンテナを提供するものである。

【0006】

【課題を解決するための手段】本発明の BS アンテナは、仰角調整金具に設けた円弧状の長穴の一端側を開放形状とすることにより、仰角調整金具をリフレクター側へ折り畳み可能に、例えば 90 度回転し折り畳み可能な

構成としている。

【0007】

【作用】本発明の BS アンテナによれば、仰角調整金具の切り込みを利用して仰角調整金具をリフレクター側へ 90 度回転する事が出来、アンテナの全長を小さくする事が出来る。

【0008】

【実施例】以下に、本発明の一実施例の BS アンテナについて図 1、2、3、4 を参照しながら説明する。

10 【0009】図 1 は本発明の一実施例における折りたたみ可能な BS アンテナの構成図である。

【0010】図 1 において、符号 1 はパラボラ反射鏡、2 はパラボラ反射鏡 1 で反射、集束した 12 GHz 帯の電波を扱いやすい 1 GHz 帯に周波数変換を行なうローノイズブロックダウンコンバーター（以下 LNB と称す）、3 は LNB を所定の位置に固定するアーム、4 は仰角の調整とボールへの固定を行なう仰角調整金具、5 はボール、6 はボール締め付けねじ、7 は仰角調整金具 4 とボール締め付けねじ 6 でボール 5 を挟み込みアンテナをボール 5 に固定する固定金具、8 はパラボラ反射鏡 1 と仰角調整金具 4 を接続する支持金具である。図 2 は本発明の一実施例における折りたたみ可能な BS アンテナの平面図である。図 3 は、仰角調整金具 4 の側面図の部分拡大図である。

【0011】仰角調整金具 4 には、仰角を調整するため円弧状の長穴 9 を設けており、この長穴の片端を開放形状としている。長穴 9 の一端側を開放形状とすることで、仰角調整金具 4 は仰角固定ねじ 12 を緩めるだけで、仰角固定ねじ 12 を取り外すことなく、仰角支点ねじ 11 を支点として、リフレクター側に回転することが出来る。図 4 は本発明の仰角調整金具 4 を装着し、折りたたんだ状態のオフセットパラボラアンテナの側面図である。

【0012】BS アンテナを上記実施例のように構成することにより、仰角調整金具をリフレクター側へ折り畳み可能に、例えば 90 度回転させることが出来る。

【0013】

【発明の効果】以上のように本発明によれば、仰角調整金具の長穴部分の片端を解放し、仰角調整金具を 90 度回転させる事で、アンテナの全長が短くなる。アンテナの全長が短くなることでバックアップケースの深さ寸法を小さく出来、コストも低減出来る。

【図面の簡単な説明】

【図 1】本発明の一実施例における BS アンテナの側面図

【図 2】図 1 の平面図

【図 3】図 1 における仰角調整金具の部分拡大側面図

【図 4】図 1 の仰角調整金具を折り畳んだ状態の側面図

【図 5】従来の BS アンテナの側面図

【符号の説明】

- 3
- 1 パラボラ反射鏡
 - 2 LNB
 - 3 アーム
 - 4 仰角調整金具
 - 5 ボール
 - 6 ボール締め付けねじ

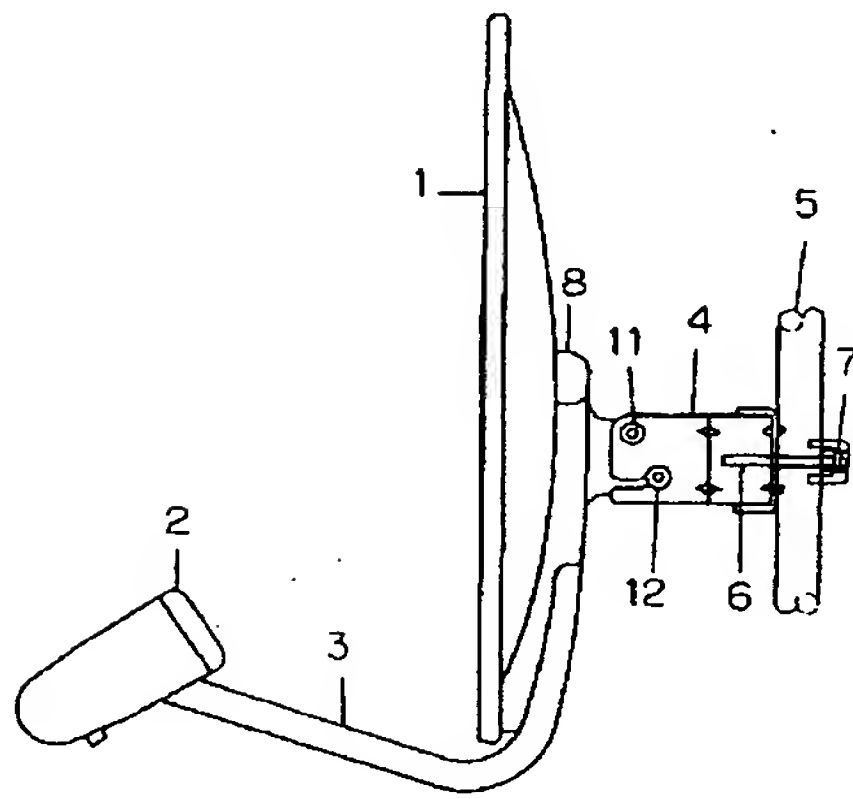
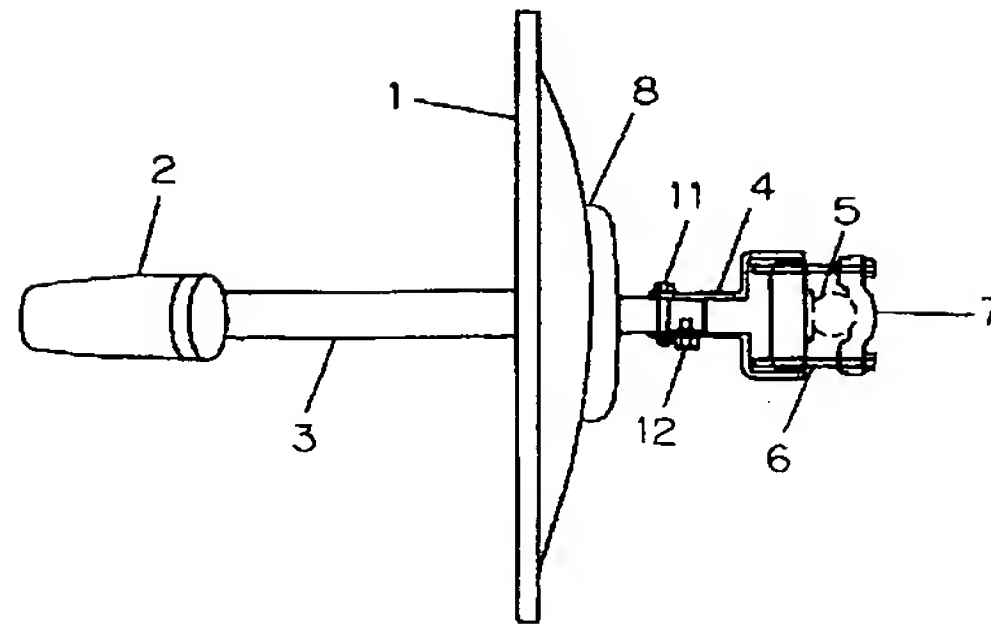
- 4
- * 7 固定金具
 - 8 支持金具
 - 9 長穴
 - 11 仰角支点ねじ
 - 12 仰角固定ねじ

*

【図1】

【図2】

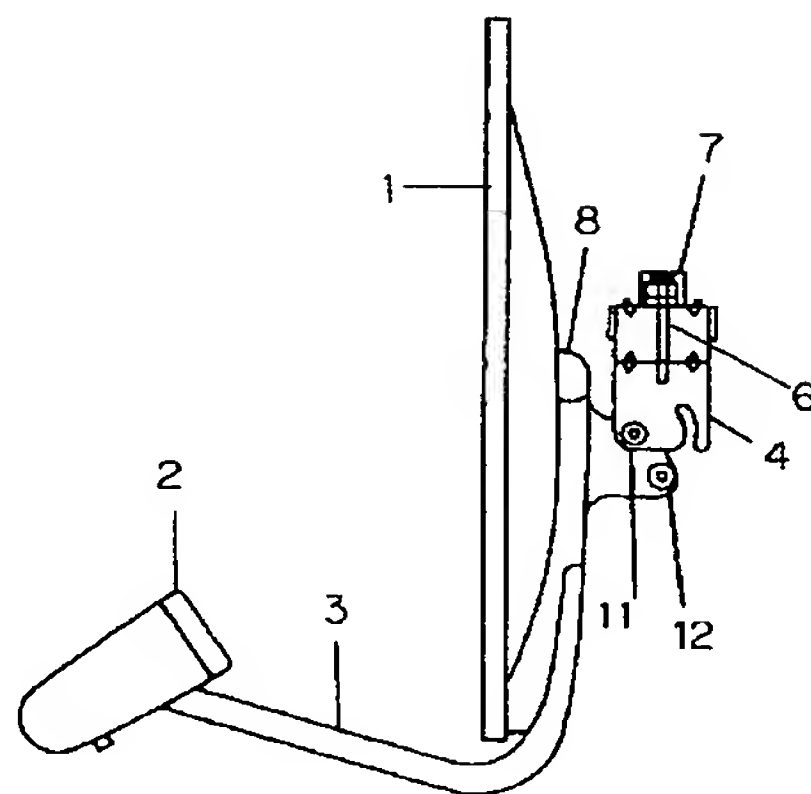
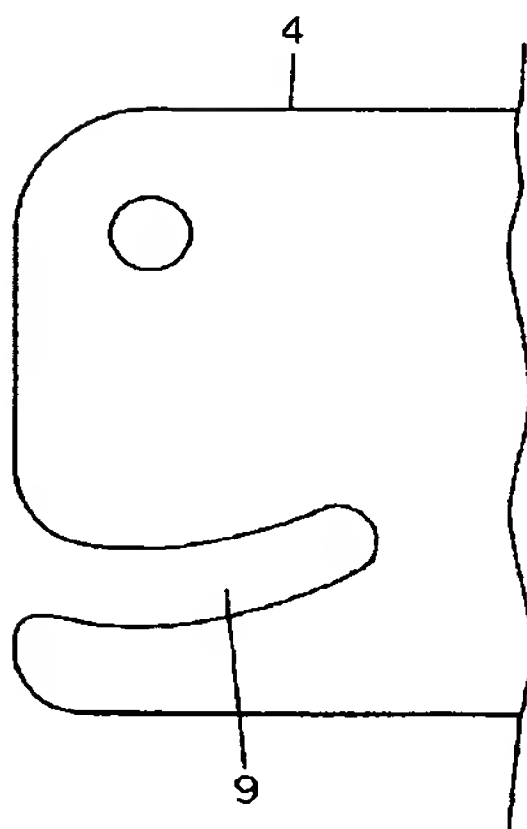
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- 2 LNB
- 3 アーム
- 4 仰角調整金具
- 5 ボール
- 6 ボール締め付けねじ
- 7 固定金具
- 8 支持金具
- 11 仰角支点ボルト
- 12 仰角固定ボルト



【図3】

【図4】

9 長穴



【図5】